

Commonwealth of Kentucky
Division for Air Quality
PERMIT STATEMENT OF BASIS

(DRAFT)

Conditional Major, Construction / Operating

Permit: F-07-057

Close the Loop, Inc.

Hebron, KY 41048

12/20/07

Julian D. Breckenridge, Reviewer

SOURCE ID: 21-015-00162

AGENCY INTEREST: 97932

ACTIVITY: APE20070001

SOURCE DESCRIPTION:

Close the Loop, Inc. proposes to own and operate a production facility in Hebron, Kentucky, to recycle spent copier toner and printer ink cartridges. The facility will recover toner powder, ink, plastics, metals and foam. Most of the recovered materials will be sold to off-site companies for use as raw materials in manufacturing processes. Close the Loop will also manufacture a plastic-based product called eWood that is made from recovered plastic, toner powder and ink. In the process, the toner cartridges will be received and cracked open by a shredder, causing the toner powder to be released and collected by a dust collector. The shells of the toner cartridges are crushed, and various plastic and metal components are collected. Eventually, the plastic pieces are processed in a grinder to size them for extrusion in the eWood line or for resale. The ink jet cartridges will also be received and disassembled in order to remove the ink. The ink is collected in drums or totes for reuse in the pelletizing line. The plastic and metal components and polyurethane foam of the cartridges are collected while the plastic shells are processed in a grinder to size them for extrusion in the eWood line or for resale. In the pelletizing line, the toner and ink collected are mixed in a mixer. The mixed material is then pressure-formed into small pellets for reuse in the eWood lines or for resale to off-site users. The grinded plastic and pellets are used as feedstock for the extruder to produce eWood.

On September 27, 2007 the Division of Air Quality received an application from Close the Loop, Inc. for an initial conditional major permit under 401 KAR 52:030. The application was deemed complete on December 17, 2007. The source has maximum allowable emissions of 162 tons per year of particulate matter (PM/PM₁₀), based on emission limits from 401 KAR 59:010 and maximum uncontrolled emissions of 221 tons per year of volatile organic compounds (VOC). The source requested VOC and PM₁₀ limits below major source thresholds. Even though potential emissions for single hazardous air pollutants (HAP) and combined HAP are below major source thresholds, the source also requested federally enforceable limits for single and combined HAPs.

COMMENTS:

Emission Units:

Table 1. Summary of all emission points, descriptions, and rated capacities

EMISSION POINTS	DESCRIPTION	MAXIMUM HOURLY RATE (lb/hr)
EP01	Toner Cartridge Receiving Installation Date: 2008	8000
EP02	Toner Cartridge Shredding Installation Date: 2008	8000
EP03A	Water-Based Ink Cartridge Shredding Installation Date: 2008	1047
EP03B	Solvent-Based Ink Cartridge Shredding Installation Date: 2008	55.2
EP04	Toner Feed Installation Date: 2008	1040
EP05	Foam Handling & Conveying Installation Date: 2008	208
EP06	Mixing Installation Date: 2008	2000
EP07	Batch Bin for Pellet Mill Installation Date: 2008	2000
EP08	Pellet Mill Installation Date: 2008	2000
EP09	Pellet Packaging Bin Installation Date: 2008	2000
EP10	Pellet Packaging Installation Date: 2008	2000
EP11	Plastic Grinder Installation Date: 2008	7800
EP12	Pellet Feed System Installation Date: 2008	2000
EP13	E-Wood Manufacturing Installation Date: 2008	2000

Table 2. Control devices and control efficiencies at the emission points

EMISSION POINTS	STACKS	CONTROL DEVICES	CONTROL EFFICIENCY (%)
EP01 – EP02	S1	Dust Collector #1	99.9
EP03A – EP03B	N/A	N/A	N/A
EP04	S1	Dust Collector #1	99.9
EP05	N/A	N/A	N/A
EP06 – EP07	S1	Dust Collector #1	99.9
EP08	N/A	N/A	N/A
EP09	S2	Dust Collector #2	99.9
EP10	N/A	N/A	N/A
EP11	S3	Dust Collector #3	99.9
EP12	N/A	N/A	N/A
EP13	S4	Dust Collector #4	99.9

a) Potential to Emit Calculations

Engineering estimates, material balances, and stack test data from similar sources were used to calculate emissions from the emission points. The methodology used to calculate emissions is consistent with that approved by the Division for Air Quality (DAQ).

b) Applicable Regulations

401 KAR 59:010, *New process operations*

Pursuant to 401 KAR 59:010, particulate emissions from each of the emission points EP01, EP02 and EP04 – EP13 shall not exceed the Allowable Rate Limit as calculated by the equation in 401 KAR 59:010, Section 3 (2). In addition, the visible emissions from each emission point in the press mixer area shall not be greater than 20 % opacity.

State-Origin Requirements:

401 KAR 63:020, *Potentially hazardous matter or toxic substances*, applies to emission point EP13, which emits or may emit potentially hazardous matter or toxic substances.

c) Non-applicable Regulations

401 KAR 63:005, *Open Burning*. The permittee must comply with this regulation as a general standard for preventing any contaminants into the open air, but this rule is not applicable to the process at hand.

401 KAR 63:010, *Fugitive Emissions*. The permittee must comply with this regulation as a general standard for preventing any contaminants into the open air, but this rule is not applicable to the process at hand.

EMISSION AND OPERATING CAPS DESCRIPTION:

Close the Loop, Inc. has applied to operate under federally enforceable permit limits of less than 90 tons per year each of PM₁₀ and VOC, less than 9 tons per year of any single hazardous air pollutant (HAP) and less than 22.5 tons per year of combined HAPs.

PERIODIC MONITORING:

a) The following parameters shall be continuously monitored:

Control Device	Emission Points	Stacks and Vents	Parameter and Schedule
Dust Collectors (4)	EP01, EP02, EP04, EP06, EP07, EP09, EP11 & EP13	S1, S2, S3, S4	Monthly inspection on all equipment

b) The permittee shall perform a qualitative visual observation of the opacity of emissions from Stacks S1 – S4 at least once per month. If visible emissions are seen, the permittee shall perform an EPA Reference Method 9 test for opacity on the applicable stack emissions within 24 hours of observing visible emissions, and make any necessary repairs to bring the opacity into compliance. [401 KAR 59:010(4)(5)]

OPERATIONAL FLEXIBILITY:

The source is not restricted as to hours of operation or quantity of product produced, while remaining within the caps above.

CREDIBLE EVIDENCE:

This permit contains provisions, which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.